The Funding Formula as a Higher Education Policy Tool in Tennessee

Russ Deaton
Director of Fiscal Analysis
Tennessee Higher Education Commission

Vanderbilt University

Association for Institutional Research
Boston, MA
2 June 2004

Key Tennessee Characteristics

- Population 5.8M, served by 9 universities, 13 community colleges and 26 technology centers.
- 19.6% of adults age 25 and up have a bachelor's degree, compared to a national average of 24.4% (US Census).
- 75.9% of adults age 25 and up have a high school diploma, compared to a national average of 80.5% (US Census).
- TN ranks 38th in state appropriations to higher education per capita (Grapevine, 2004).

TN Background - State Appropriations

Appropriations of State Tax Funds for Operating Expenses of Higher Education for Fiscal Years 1997-98 through 2003-04, with Six-Year Percentage Change

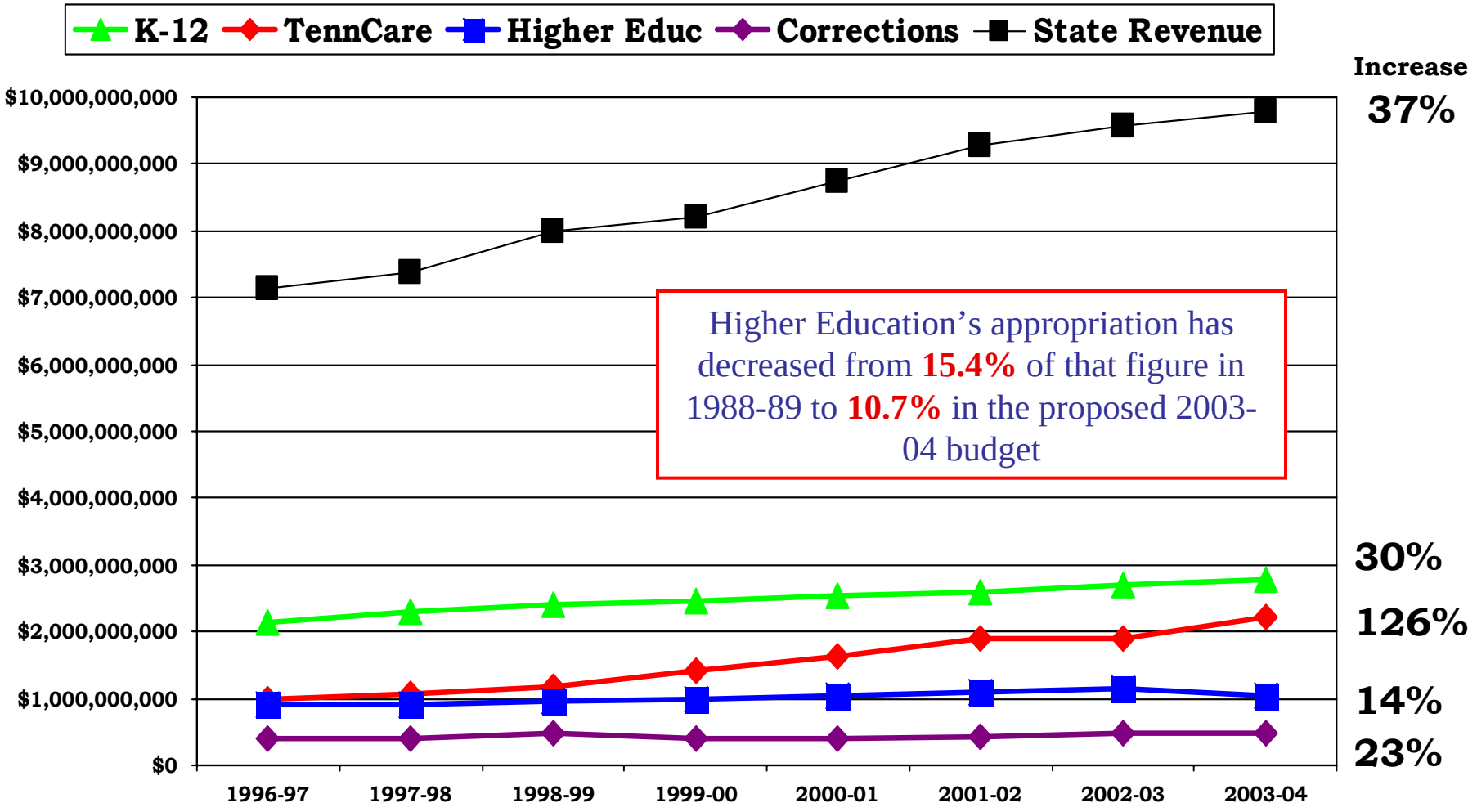
	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	Change	Nat'l Rank
Louisiana	769,680	859,036	882,798	880,064	997,813	1,055,455	1,098,721	70.1%	2
Kentucky	768,008	888,700	925,506	1,001,625	1,084,605	1,094,599	1,115,174	57.7%	3
Texas	3,558,936	3,527,867	4,486,813	4,464,237	5,074,633	5,209,765	4,850,213	52.0%	3
Florida	2,285,868	2,501,857	2,639,021	2,833,242	2,822,083	2,916,595	2,808,694	39.2%	8
Arkansas	516,675	556,659	605,216	636,907	653,386	625,987	659,055	35.4%	12
Maryland	877,412	942,748	1,042,836	1,174,820	1,297,406	1,301,845	1,140,032	35.0%	13
North Carolina	2,007,092	2,149,972	2,270,323	2,398,489	2,442,690	2,449,659	2,446,604	32.1%	15
Delaware	155,128	164,115	175,621	185,840	189,228	192,889	191,289	28.8%	22
Georgia	1,383,858	1,483,818	1,553,588	1,600,329	1,699,438	1,734,481	1,671,850	28.4%	24
Mississippi	693,153	751,195	873,562	824,031	805,964	775,243	797,246	25.5%	29
Virginia	1,152,783	1,299,919	1,481,579	1,629,776	1,681,646	1,545,680	1,340,942	25.2%	30
Alabama	976,905	1,037,680	1,100,328	1,088,446	1,116,129	1,148,152	1,164,219	20.1%	34
Oklahoma	666,024	725,450	740,544	789,155	824,891	811,474	731,375	18.6%	36
Tennessee	**909,845**	**957,970**	**984,860**	**1,045,546**	**1,073,136**	**1,106,888**	**1,046,163**	**13.8%**	**43**
West Virginia	352,763	362,261	362,750	387,432	392,051	393,695	357,966	4.6%	47
South Carolina	744,495	777,801	812,709	880,120	896,773	830,305	664,994	-6.3%	50

Data in Thousands (000s) of dollars

Source: Grapevine Database, Center for the Study of Education Policy, Illinois State University

State Appropriations for Higher Education

State Funds Appropriated to the Major Budget Areas

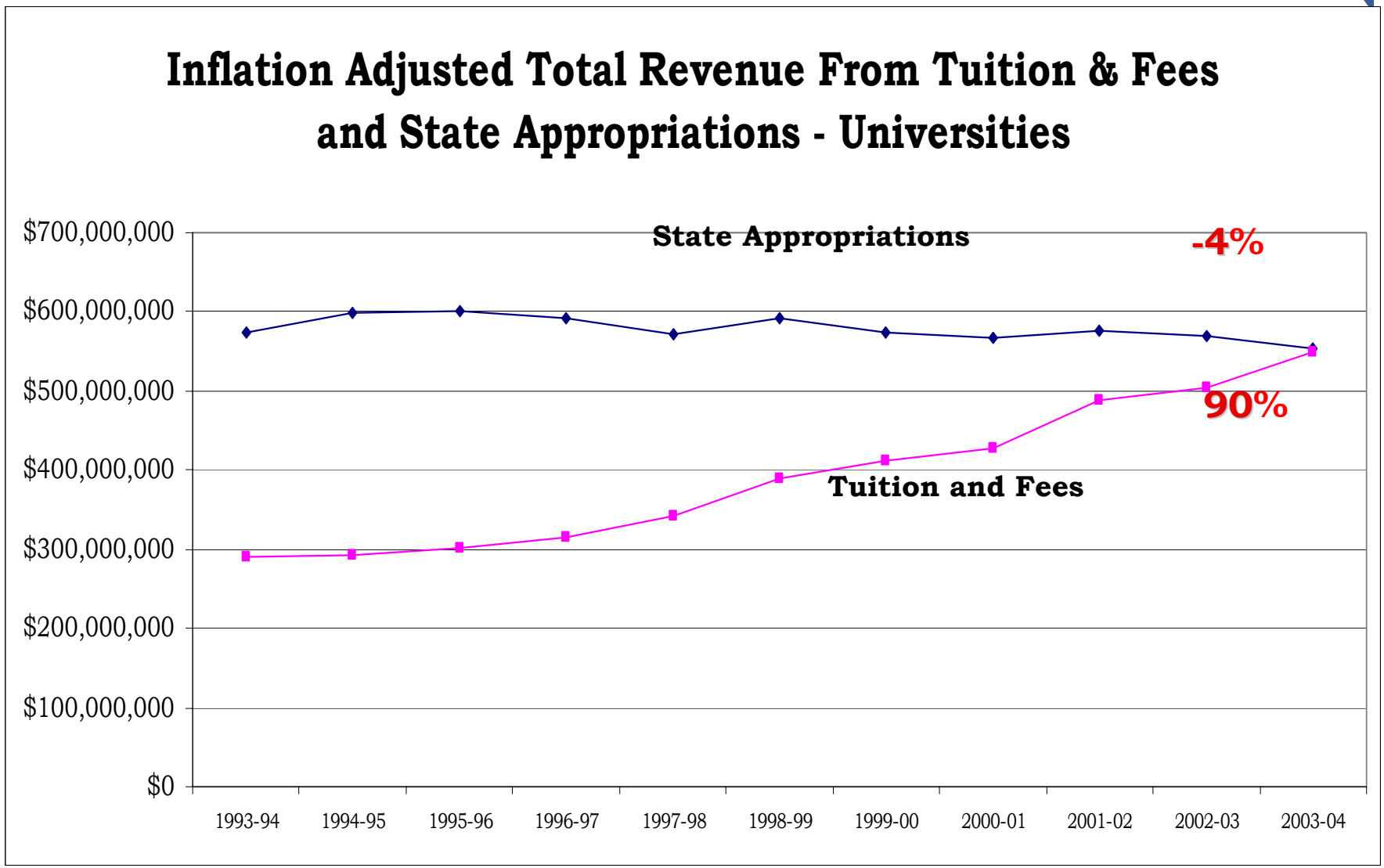


Source: THEC, State Budget Document and Legislative Budget Analysis

Total Required Tuition and Fees

	1993-94	1998-99	2003-04	5 Yr. Change	10 Yr. Change	
APSU	1,794	2,452	4,004	63.3%	123.2%	
ETSU	1,643	2,384	3,839	61.0%	133.7%	
MTSU	1,660	2,376	3,990	67.9%	140.4%	
TSU	1,686	2,288	3,788	65.6%	124.7%	
TTU	1,723	2,306	3,750	62.6%	117.6%	**Universities**
UM	1,843	2,630	4,234	61.0%	129.7%	
UTC	1,770	2,464	3,852	56.3%	117.6%	
UTK	2,018	2,744	4,450	62.2%	120.5%	
UTM	1,810	2,342	3,830	63.5%	111.6%	
CSTCC	952	1,254	2,095	67.1%	120.1%	
CLSCC	934	1,236	2,067	67.2%	121.3%	
COSCC	943	1,236	2,055	66.3%	117.9%	
DSCC	949	1,236	2,055	66.3%	116.5%	
JSCC	940	1,236	2,057	66.4%	118.8%	
MSCC	953	1,240	2,059	66.0%	116.1%	
NSCC	936	1,230	2,049	66.6%	118.9%	**Community Colleges**
NSTCC	944	1,238	2,075	67.6%	119.8%	
PSTCC	979	1,266	2,085	64.7%	113.0%	
RSCC	946	1,240	2,069	66.9%	118.7%	
STCC	931	1,233	2,055	66.7%	120.7%	
VSCC	934	1,242	2,061	65.9%	120.7%	
WSCC	934	1,240	2,059	66.0%	120.4%	

Revenue Adequacy Universities



Statutory Language

TCA 49-7-202 (c)(2)

THEC shall develop policies and formulae or guidelines for the fair and equitable distribution and use of public funds among the state's institutions of higher learning, taking into account enrollment projections, and recognizing institutional differences as well as similarities in function, services, academic programs and level of instruction.

Funding Formulae

- Funding formulae are designed to provide method to the madness of constructing a comprehensive funding recommendation for higher education.
- Formulae are designed to determine the state's share of the responsibility of funding higher education's needs.
- Some are built from scratch each year (Tennessee), while some use a base-plus approach.
- Based on cost factors or peer funding levels; many also use enrollment levels - current or ideal.
- Formulae are usually not sensitive to the state's current political or economic conditions.
- Ideally a funding formula should reflect statewide policy.

What is the Funding Formula Intended to do?

- To Define the Financial Needs of Public Higher Education at an Adequate Level of Funding
- To Fairly Distribute the Public Funds Throughout the Entire State
- To Ensure That Each Institution is Equitably Funded
- To Provide Positive Incentives for Quality Public Higher Education
- Recognize different institutional roles and missions

The Formula as a Policy Instrument

- Marks and Caruthers (1999) define a formula as a system that "links resources mathematically to an institution's characteristics."
- A funding formula serves as a contract between the state and higher education (Jones, 1984).
- Formulas must balance several virtues in tension - accountability and autonomy, simplicity and nuance, budget needs and fiscal realties, (McKeown, 1996).
- Jones (1984) cited a "lack of clarity regarding what formulas are designed to do, what their characteristics are, and how they relate to state policy."
- Jones, Ewell & McGuinness, 1998) asserted that "policies governing the allocation and use of state funds are probably the most powerful" tool for affecting institutional behavior.

Tennessee Master Plan (2000-2005)

- **Goal 1** – Elevate the educational attainment level of Tennesseans.
- **Goal 2** – Clarify all institutional missions for greater distinctiveness, with programs, services, and resources aligned to support the mission.
- **Goal 3** – Strive to be among the national leaders in the development and assessment of quality instructional programs based on student outcomes.
- **Goal 4** – Strive to be recognized as a national leader for quality research and public service.
- **Goal 5** – Strive for a sustained level of funding that will allow Tennessee citizens to reach their educational objectives, attain cultural and social goals, and compete economically with the most progressive states in the region.

Tennessee Master Plan (2000-2005)

- **Goal 6** – Public higher education will play a major role in the economic development of Tennessee.
- **Goal 7** – Implement an efficient, high quality information system that provides access and opportunity for educational services, as well as the ability to collaborate and partner with business and other agencies.
- **Goal 8** – Offer relevant educational programs that address economic, intellectual, and social problems by partnering with business, government, and P-12 and other educational institutions.
- **Goal 9** – Communicate effectively the value, strengths, and needs of higher education to the general public and to the legislative/executive branches of state government.

Master Plan Goal 1:

"Elevate the educational attainment level of Tennesseans."

Due to Tennessee's low educational attainment levels, access has been a primary goal of state policy. This policy is manifested through the use of an enrollment driven funding formula that ties funding to enrollment levels.

However, graduation rates, typically below national averages at most Tennessee universities, are not evaluated in the funding formula.

Enrollment Example

Student Credit Hours

	Level 1	Level 2
Art	1200	1000
English	1000	750
History	750	800

SCH Conversion to FTE

	Level 1	Level 2
Art	80.0	66.7
English	66.7	50.0
History	50.0	53.3

Student-Faculty Ratio

	Level 1	Level 2
Art	25	25
English	25	25
History	20	20

Faculty FTE

	Level 1	Level 2
Art	3.2	2.7
English	2.7	2.0
History	2.5	2.7

1200/15 = 80 FTE

(15 SCH = 1 FTE)

80/25 = 3.2 Faculty

Master Plan Goal 2:

"Clarify all institutional missions for greater distinctiveness."

Enrollment is categorized according to taxonomy and student level, thus allowing for a high degree of differentiation.

Level 1 - Undergraduate, lower division
Level 2 - Undergraduate, upper division
Level 3 - Masters
Level 4 - Doctoral
Level 5 - First Professional (Law)
Level 6 - Dormant

Enrollment Differentiation

- For each **academic area** and each level within the area, a **Student/Faculty Ratio** has been established.

- This represents the number of **FTE students** in the academic area/level which will generate **one faculty** unit to be funded in the formula.

Student Faculty Ratios

Academic Area	Level 1	Level 2	Levels 3 and 5	Level 4
Agriculture & Related Disc.	18.9	13.7	8.4	4.2
Architecture & Related Disc.	18.9	13.7	8.4	4.2
Area, Ethnic, & Cultural Studies	21	15.8	10.5	4.2
Marketing Ops./Marketing & Dist.	23.1	15.8	10.5	4.2
Communications/Comm. Tech.	21	15.8	10.5	4.2
Computer and Info. Sciences	21	13.7	10.5	4.2
Education	21	13.7	10.5	4.2
Engineering	18.9	13.7	8.4	4.2
Engineering Technology	18.9	13.7	8.4	4.2
Foreign Languages & Literatures	21	13.7	8.4	4.2
Home Economics & Related Disc.	21	13.7	8.4	4.2
General Technology	18.9			
Law & Legal Studies	21	21	21	4.2
English Language & Literature	21	15.8	10.5	4.2
Lib. Arts & Sciences & Related Studies	21	13.7	8.4	4.2
Library Science	18.9	13.7	8.4	4.2
Biological/Life Sciences	21	13.7	8.4	4.2
Mathematics	23.1	15.8	10.5	4.2
Military Science	23.1	15.8	10.5	4.2
Multi/Interdisciplinary Studies	21	13.7	8.4	4.2
Leisure & Fitness Studies	21	13.7	10.5	4.2
Philosophy, Religion, & Theology	21	15.8	10.5	4.2
Physical Sciences	21	13.7	8.4	4.2
Psychology	23.1	15.8	10.5	4.2
Protective Services & Public Affairs	23.1	13.7	10.5	4.2
Social Sciences	23.1	15.8	10.5	4.2
Trades & Industrial Training	18.9	13.7		
Visual & Performing Arts	18.9	13.7	8.4	4.2
Health Professions & Related Services				
Clinical	10	10	8	4
Non-Clinical	10.5	10.5	8.4	4.2
Business Mgmt. & Admin. Services	23.1	15.8	10.5	4.2

Master Plan Goal 3:

"Strive to be among the national leaders in the development and assessment of quality instructional programs based on student outcomes."

This goal is reflected in TN's longstanding performance funding program which includes assessment of graduates and licensure score (nursing, engineering) evaluations.

Master Plan Goal 3:

"Strive to be among the national leaders in the development and assessment of quality instructional programs based on student outcomes."

In order to encourage quality, Tennessee led the nation in establishing a performance funding program in the late 1970s. Tennessee has explicitly stated as a goal that accountability through documented enhancement of quality needs to be linked directly with the funding formula.

Master Plan Goal 5:

“ … Strive for a sustained level of funding .”

Tennessee’s funding formula calculates a total expenditure need. It then apportions that need among two primary revenue sources: state appropriations and in-state maintenance fees.

Master Plan Goal 5:

" … Strive for a sustained level of funding ."

Total Formula Need = $140

Ratio between state appropriations and maintenance fees = 40%

$$\frac{40}{100} = 40\%$$

$40 is expected from Maintenance fees and the remaining $100 of need is the state appropriation recommendation.

Master Plan Goal 7:

“ … the ability to collaborate and partner with business and other agencies.”

Tennessee’s funding formula is designed to model expenditure needs and does not contemplate business partnerships or any entrepreneurial activity.

Grading the TN Funding Formula

- Emphasis on Access – Enrollment driven formula.
- Focus on accountability, excellence – Performance funding.
- Proper recognition of institutional mission.
- No evaluation of graduation, transfer, articulation.
- No guarantee of a adequate, sustained level of funding.
- No incentive for entrepreneurial activity.

The Formula as a Policy Instrument

- It is through the funding formula where key statewide higher education policies are promulgated.

- The formula provides an arena for policy implementation and the manifestation of those policies in the funding mechanism.

Affecting Policy through the Funding Formula

- THEC Formula Review Committee
- National Center for Higher Education Management Systems (NCHEMS)
- Grant Recipient for Western Interstate Commission on Higher Education (WICHE) *Changing Direction* Project
- Development of TN Master Plan 2005-2010

Affecting Policy through the Funding Formula

- How should the formula be constructed?
- What behavior should it reward or encourage?
- What are the driving principles of a formula that should guide its design?
- Should enrollment be the primary component of the construction?
- How should the distribution methodology function?
- Should retention or graduation rates play an expanded role in quality initiatives in the formula? Are there others?